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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,363	03/23/2004	Graciela Beatriz Blanchet-Fincher	CL2328 US NA	3947
23906	7590	06/01/2006	EXAMINER	
E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805			WALKE, AMANDA C	
			ART UNIT	PAPER NUMBER
			1752	
DATE MAILED: 06/01/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/807,363

Applicant(s)

BLANCHET-FINCHER, GRACIELA
BEATRIZ

Examiner

Amanda C. Walke

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/9/2006 has been entered.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 and 8-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Blanchet-Fincher (6,143,451).

Blanchet-Fincher disclose an improved processes for laser thermal imaging and imaged laserable assemblages obtained using the improved processes of this invention are described. These improved processes operate effectively at high speeds and also afford high image densities and good durability of images present on receiver elements upon thermal imaging done in accordance with these improved processes. The invention of the reference is a laser-induced, thermal transfer process which comprises:

(1) imagewise exposing to laser radiation a laserable assemblage comprising:

Art Unit: 1752

(A) a donor element comprising in the order listed:

(a) a support;

(b) at least one ejection layer comprising a first polymer;

(c) at least one heating layer; and

(d) at least one transfer layer having an outer surface and comprising (i) a second polymer having a decomposition temperature $T < 350^\circ\text{C}$. and (ii) an imageable component;

(B) a receiver element in contact with the outer surface of the transfer layer (d) of the donor element,

wherein the imagewise exposing to laser radiation is effected at a laser fluence of less than or equal to approximately 440 mJ/cm^2 , in which a substantial portion of the transfer layer is transferred to the receiver element; and

(2) separating the donor element from the receiver element.

The flexible ejection layer is, in the preferred embodiment, the first of the three

functional layers. This layer provides the force to effect transfer of the imageable component to the receiver element. When heated, this layer decomposes into gaseous molecules providing the necessary pressure to propel or eject the imageable component onto the receiver element. This is accomplished by using a polymer having a relatively low decomposition temperature (less than about 350°C ., preferably less than about 325°C ., and more preferably less than about 280°C .). In the case of polymers having more than one decomposition temperature, the first decomposition temperature should be lower than 350°C . Furthermore, in order for the ejection layer to have suitably high flexibility and conformability, it should have a tensile modulus that is less than or equal to 2.5 Gigapascals (GPa), preferably less than 1.5 GPa, and more preferably less than 1 Gigapascal (GPa). The polymer chosen should also be one that is

Art Unit: 1752

dimensionally stable. If the laserable assemblage is imaged through the donor flexible ejection layer, the flexible ejection layer should be capable of transmitting the laser radiation, and not be adversely affected by this radiation. Examples of suitable polymers include (a) polycarbonates having low decomposition temperatures (Td), such as polypropylene carbonate; (b) substituted styrene polymers having low decomposition temperatures, such as poly(alpha-methylstyrene); (c) polyacrylate and polymethacrylate esters, such as polymethylmethacrylate and polybutylmethacrylate; (d) cellulosic materials having low decomposition temperatures (Td), such as cellulose acetate butyrate and nitrocellulose; and (e) other polymers such as polyvinyl chloride; poly(chlorovinyl chloride) polyacetals; polyvinylidene chloride; polyurethanes with low Td; polyesters; polyorthoesters; acrylonitrile and substituted acrylonitrile polymers; maleic acid resins; and copolymers of the above. Mixtures of polymers can also be used. Additional examples of polymers having low decomposition temperatures can be found in Foley et al., U.S. Pat. No. 5,156,938. These include polymers which undergo acid-catalyzed decomposition. For these polymers, it is frequently desirable to include one or more hydrogen donors with the polymer. When the absorbing dye is incorporated in the ejection layer, its function is to absorb the incident radiation and convert this into heat, leading to more efficient heating. It is preferred that the dye absorb in the infrared region. For imaging applications, it is also preferred that the dye have very low absorption in the visible region. Examples of suitable infrared absorbing dyes which can be used alone or in combination include poly(substituted) phthalocyanine compounds and metal-containing phthalocyanine compounds; cyanine dyes; squarylium dyes; chalcogenopyryloacrylidene dyes; croconium dyes; metal thiolate dyes; bis(chalcogenopyrrolo) polymethine dyes; oxyindolizine dyes; bis(aminoaryl) polymethine dyes; merocyanine dyes; and

Art Unit: 1752

quinoid dyes. Preferred polymers for the transfer layer are (meth)acrylic polymers, including, but not limited to, acrylate homopolymers and copolymers, methacrylate homopolymers and copolymers, (meth)acrylate block copolymers, and (meth)acrylate copolymers containing other comonomer types, such as styrene.

The reference teaches that there is a heating layer located between the ejections layer and the transfer layer which contains a metal such as a Group IVA metal (which includes semiconducting metals Ge and Si) and preferably contains a Zr metal compound. Zr compounds are listed in the specification as useful in the transfer layer. This layer could be considered the transfer layer portion of the donor element and the transfer layer the protective layer.

Given the teachings of the reference, the instant claims are anticipated by the reference.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6 and 8-28 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchet-Fincher in view of Wolk et al (6221,553).

Blanchet-Fincher has been discussed above. In another interpretation of the reference, the reference teaches that the transfer layer may comprise more than one layer.

Wolk et al disclose a similar transfer material./ donor element to that of the primary reference. The reference teaches that it is advantageous to employ a dual-layer transfer layer

Art Unit: 1752

comprising a first layer comprising a semiconducting material (Examples of suitable polymers include acrylic polymers, polyanilines, polythiophenes, poly(phenylenevinyls), polyacetylenes, and other conductive organic materials), and a second layer (either a release or adhesive layer) which would serve as a protective layer.

Given the teachings of the reference, it would have been obvious to one of ordinary skill in the art to prepare the material of Blanchet-Fincher, choosing to employ the advantageous dual layer transfer layer system of Wolk et al, with reasonable expectation of achieving a material having high image density and durability.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchet-Fincher or Blanchet-Fincher in view of Wolk et al in view of Fincher et al (6,818,363).

Blanchet-Fincher has been discussed above, but fails to specify the type of IR dye added to the ejection layer.

Fincher et al disclose a thermally imageable material comprising multiple colorants that are conventional in IR polymeric compositions. These colorants include Some useful solvent soluble dyes include 3-H-Indolium, 2-[2-[2-chloro-3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)ethylidene]-1-cyclopenten-1-yl]ethynyl]-1,3,3-trimethyl-, salt with trifluoromethane sulfonic acid, but additional counterions include bromide, chloride, perchlorate and "Tosylate", a contraction for "para-Toluenesulfonate", the anion formed by neutralizing para-toluenesulfonic acid with base. Tosylate is an organic soluble, inert anion which functions similarly to anions like chloride, bromide, etc.

Given the teachings of the reference, it would have been obvious to one of ordinary skill in the art to prepare the material of Blanchet-Fincher, choosing to include 3-H-Indolium, 2-[2-[2-


Art Unit: 1752

chloro-3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)ethylidene]-1-cyclopenten-1-yl]ethylenyl]-1,3,3-trimethyl-, salt with perchlorate as the dye as taught by Fincher et al, with reasonable expectation of achieving a material having high image density and durability.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C. Walke whose telephone number is 571-272-1337. The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Amanda C Walke
Primary Examiner
Art Unit 1752

ACW
May 30, 2006